

Appl. No. 10/613,932
Amdt. dated August 5, 2005
Reply to Office action of May 5, 2005

REMARKS

Reconsideration is respectfully requested. Claims 1-13 are present in the application. Claims 1 and 4 are amended herein.

We thank the Examiner for noting that the proposed drawing amendments in the previous response were accepted.

Claims 1-13 are rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. The Examiner asserts that the claims do not recite any form of technology and do not have any specific utility.

Applicants respectfully traverse.

Courts have interpreted the transformation of data requirement to be statutory subject matter broadly. For example, State Street states: "Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result'-a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades."

Applicants' invention also produces a useful result, modified grid data of physical measurements of a continuum

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medium. The modified grid data is more easily and efficiently further processed for other analysis.

The Federal Circuit has states that: "The threshold of utility is not high: An invention is "useful" under section 101 if it is capable of providing some identifiable benefit. See *Brenner v. Manson*, 383 U.S. 519, 534 (1966); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed. Cir. 1992) ("To violate 101 the claimed device must be totally incapable of achieving a useful result"); *Fuller v. Berger*, 120 F. 274, 275 (7th Cir. 1903) (test for utility is whether invention "is incapable of serving any beneficial end")." *Juicy Whip, Inc., V. Orange Bang, Inc.*, 98-1379, Fed Cir 1999.

Thus, applicants submit that the transformation requirement does not require a chemical or phase change of a physical material, but is satisfied, as in *State Street*, by the useful transformation of data. In the claimed inventions, data is transformed to modified data which is more adapted for easier and more efficient further analysis.

Even if the claims steps were algorithms, the Federal Circuit clarified that an algorithm is patentable, if it is not merely a discovered principal. Thus, in *Diehr*, the Court specifically confined the holdings of *Benson* and *Flook* to the facts of those cases. Significantly, the Court thereby refused to classify all algorithms as non-statutory subject matter. Only algorithms which merely represent discovered principles are

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excluded from section 101. The inventions in Benson and Flook involved such algorithms. In Benson, the invention was simply a way to solve a general mathematics problem; in Flook the invention was a way to obtain a number. Diehr, 450 U.S. at 185-86. In pronouncing the severe confinement of the earlier decisions, the Supreme Court restored the Patent Act's clear meaning that processes and machines are patentable subject matter even if they include an algorithm. In the wake of Diehr and Chakrabarty, the Supreme Court only denies patentable subject matter status to algorithms which are, in fact, simply laws of nature." In re Alappat.

Applicants submit that the claims are certainly not non-patentable algorithms that represent discovered principals. The physical steps are not mental steps.

In Alappat, the Federal Circuit warns against limiting patentable subject matter. "The use of the expansive term "any" in §101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101 and the other parts of Title 35. Indeed, the Supreme Court has acknowledged that Congress intended §101 to extend to "anything under the sun that is made by man." Diamond v. Chakrabarty, 447 U.S. 303, 309, 65 L. Ed. 2d 144, 100 S. Ct. 2204 (1980), quoting S. Rep. No. 1979, 82nd Cong., 2nd Sess., 5 (1952); H.R. Rep. No. 1923, 82nd Cong., 2nd Sess., 6 (1952). Thus, it is improper to

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read into §101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations. See Chakrabarty, 447 U.S. at 308 ("We have also cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.'"), quoting United States v. Dubilier Condenser Corp., 289 U.S. 178, 199, 77 L. Ed. 1114, 53 S. Ct. 554 (1933)." Alappat

In Schrader, the Federal Circuit addressed whether a physical transformation is required. "Professor Robinson cites to Cochrane for the above definition but inexplicably speaks in terms of changes to a physical "object" while Cochrane speaks in terms of changes to "subject matter." The distinction is significant. In the Telephone Cases, 126 U.S. 1, 31 L. Ed. 863, 8 S. Ct. 778 (1887), the Court upheld the validity of a claim directed to a method for transmitting speech by impressing acoustic vibrations representative of speech onto electrical signals. If there was a requirement that a physical object be transformed or reduced, the claim would not have been patentable. The point was recognized by our predecessor court in In re Prater, 56 C.C.P.A. 1381, 415 F.2d 1393, 162 USPQ 541, 549 (CCPA 1969): "[The Cochrane passage] has sometimes been misconstrued as a 'rule' or 'definition' requiring that all processes, to be patentable, must operate physically upon substances. Such a result misapprehends the nature of the

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passage" Id. at 1403, 162 USPQ at 549, modifying on rehearing, 415 F.2d at 1387-88, 159 USPQ 583, 592 (CCPA 1968); see also In re Musgrave, 57 C.C.P.A. 1352, 431 F.2d 882, 892, 167 USPQ 280, 289 (CCPA 1970). Thus, it is apparent that changes to intangible subject matter representative of or constituting physical activity or objects are included in the definition. See Tilghman v. Proctor, 102 U.S. 707, 728, 26 L. Ed. 279 (1881); Corning v. Burden, 56 U.S. (15 How.) 252, 14 L. Ed. 683 (1854). In re Schrader, 30 USPQ2d 1455, 22 F.3d 290, Fn12, (Fed. Cir. 1994).

Applicants amend claims 1 and 4 herein with attention to the points raised by the Examiner. The claims include reference to the physical data being handled. Further, the claims have been amended to include indication of the utility. Claim 1 includes "said system thereby providing a modified grid data adapted for more efficient calculation and memory usage in analysis of said physical quantities data of said continuum medium". Claim 4 includes "providing a modified grid data adapted for more efficient calculation and memory usage in analysis of said physical quantities data of said continuum medium". It is submitted that the claims more than meet the standards of patentable subject matter and utility under 35 U.S.C. §101.

Claims 1-13 are rejected under 35 U.S.C. §112, first paragraph, as allegedly being not supported by either a specific

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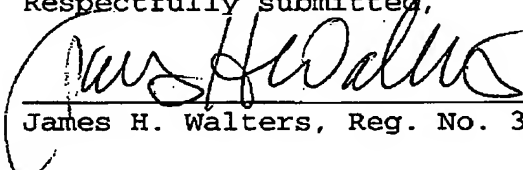
or substantial asserted utility or well established utility. Applicants respectfully traverse. It is submitted that the amendments noted above clarify the utility, that is, providing a modified grid data adapted for more efficient calculation and memory usage in analysis of said physical quantities data of said continuum medium. As noted in some of the dependent claims, the continuum medium can be shockwave data of a compressible fluid. It is respectfully submitted that the claims are in compliance with 35 U.S.C. §112, first paragraph.

Entry of the amendments herein is requested. It is submitted that the claims as previously presented were patentable, but the amendments herein are presented to attempt to further the prosecution of the application, and further search and consideration should note be necessary as a result of the amendments.

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In light of the above noted amendments and remarks, this application is believed in condition for allowance and notice thereof is respectfully solicited. The Examiner is asked to contact applicant's attorney at 503-224-0115 if there are any questions.

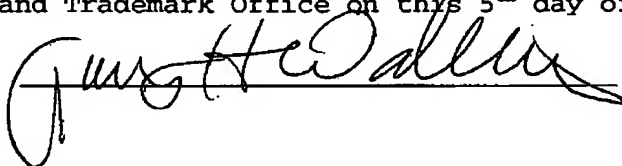
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